M. Sc. 1st Semester Practical Examination 2015

Subject – Electronics

Paper-ELC-106 (practical)

(Electronic Circuit lab)

Time – 3 Hours

1. Design and study the performance of a 1st order low pass butter worth filter with following specification.
   Cut off frequency
   a) Design with working formula. 6+2
   b) Draw the circuit and level. 3
   c) Implement the circuit on bread board. 3+1
   d) Record the data for frequency response. 8
   e) Draw the graphs. 3
   f) Compare the cut off frequency with calculated and experimental value 7
   g) Discus on Results obtained. 2

2. Design and study the performance of a 1st order high pass butter worth filter with following specification.

   a) Design with working formula. 6+2
   b) Draw the circuit and level. 3
   c) Implement the circuit on frequency. 3+1
   d) Record the data for frequency response. 8
   e) Draw the graphs. 5
   f) Compare the cut off frequency with calculated and experimental value 5
   g) Discus on Results obtained. 2

3. Design and study the performance of an active first order low pass butter worth filter with following specification
   Cut off frequency
   Gain
   a) Design with working formula. 6+2
   b) Draw the circuit and level. 3
   c) Implement the circuit on bread board. 3+1
   d) Record the data for frequency response. 8
   e) Draw the graphs. 5
   f) Compare the cut off frequency with calculated and experimental value 5
   g) Discus on Results obtained. 2

4. Design and study the performance of an active first order high pass butter worth filter with following specification
Cut off frequency
Gain
a) Design with working formula. 6+2
b) Draw the circuit and level. 3
c) Implement the circuit on bread board. 3+1
d) Record the data for frequency response. 8
e) Draw the graphs. 5
f) Compare the cut off frequency with calculated and experimental value 5
g) Discuss on Results obtained. 2

5. Design a variable regulated power supply using LM 317 with following specification
   Output voltage......
   Output current ......
a) Working formula. 4
b) Circuit diagram and leveling. 3
c) Implement the circuit on bread board. 3
d) Record the data for low regulation and line regulation. 5+5
e) Draw necessary graphs. 4+4
f) Calculate percentage of regulation and stability factor. 2+2
g) Discuss on the result obtained. 3

6. Design a regulated power supply using 78xx and study its performance.
   Specification
   Output voltage......
   Output current ......
a) Design with working formula. 4
b) Draw the circuit diagram and level it. 3
c) Implement the circuit on bread board. 3
d) Record the data for low and line regulation characteristics. 5+5
e) Draw necessary graphs. 2+2
f) Calculate percentage of regulation and stability factor. 3
g) Discuss on the result obtained. 4+4

7. Design and study the performance of a regulated power supply using power transistor and OPAMP with following specification.

   a) Design with working formula. 8
   b) Draw the circuit diagram and level it. 3
c) Implement the circuit on bread board. 4
d) Record the data for low and line regulation characteristics. 4+4
e) Draw necessary graphs. 3+3
f) Calculate percentage of regulation and stability factor. 2+2
g) Discuss on the result obtained. 2

8. Design a regulated power supply using power transistor as pass element and transistor as comparator with following specification.
   Output voltage......
   Output current ......
a) working formula with design consideration. 8
b) Circuit diagram and leveling. 3
c) Implement the circuit on bread board. 4
d) Record the data for load and line regulation. 4+4
e) Draw necessary graphs. 6
f) Calculate percentage of regulation and stability factor. 2+2
g) Discuss on the result obtained. 2

9. Study the performance of OPAMP as logarithmic amplifier.

a) Design consideration and working formula. 4
b) Draw the circuit diagram and level it. 3+2
c) Implement the circuit on bread board. 3
d) Record the necessary data. 10
e) Draw the graphs. 4+4
f) Discuss and comment on possible application. 5

10. Study the performance of OPAMP as anti logarithmic amplifier.

a) Design consideration and working formula. 4
b) Draw the circuit diagram and level it. 3
c) Implement the circuit on bread board. 3
d) Record the necessary data. 10
e) Draw the graphs. 4+4
f) Discuss and comment on possible application. 7

11. Design a single stage CE amplifier Couple the single stage with second stage using capacitance and study its performance.

a) Design consideration with working formula. 4+4
b) Circuit diagram and leveling. 3
c) Implement the circuit on bread board. 4
d) Record the data for frequency response. 10
e) Draw graph. 4
f) Calculating the Band width. 3
g) Discusses the results obtained. 3

**Distribution of marks**

Experiment : 35 marks
Viva-voice : 10 marks
Laboratory note book : 05 marks

Total : 50 Marks